

IN THE CLAIMS

The claims are presented in accordance with the revised 37 CFR 1.121.

CLAIMS

1. (Currently Amended) A method of analyzing a medical images to use a CAD system to detect anatomical abnormalities obtained from one of a plurality of modalities original sources, the method comprising:

normalizing each the medical image-image such that each medical image conforms to a canonical contrast response curve ~~to create a uniform image quality for~~ image analysis regardless of the original source of the image.

2. (Original) The method of claim 1, wherein the medical image is in a DICOM format for flexibility in communication with devices.

3. (Original) The method of claim 2, further comprising:
converting the medical image to a DICOM format.

4. (Original) The method of claim 1, further comprising:
detecting what anatomical feature is represented by the image; and
processing the image to detect abnormalities in the anatomical feature, in
accordance with a detection process for that anatomical feature.

5. (Original) The method of claim 4, wherein detecting what anatomical feature is represented uses a header present in a DICOM format of the image.

6. (Currently Amended) The method of claim 1, further comprising:
generating a new tone scale ~~images~~ for the medical image for optimal
visualization of abnormalities in dense anatomic regions.

7. (Currently Amended) An apparatus to improve medical imaging
comprising:

an image analysis system to normalize a medical image to create a ~~uniform image~~
~~quality~~ canonical contrast response curve regardless of an original format of the image,
permitting a single analysis algorithm to be used on all images regardless of original
~~format~~ source.

8. (Currently Amended) The apparatus of claim 7, further comprising:
an image acquisition module to acquire a medical image ~~in~~ from one of a plurality
of ~~modalities~~ sources.

9. (Original) The apparatus of claim 8, wherein the image acquisition
module is coupled to the image analysis system through a network.

10. (Original) The apparatus of claim 7, further comprising:
a review station to allow medical personnel to review the medical image after
analysis.

11. (Original) The apparatus of claim 10, wherein the review station is
coupled to the image analysis system through a network.

12. (Original) The apparatus of claim 11, wherein the review station comprises:

a user interface permitting the reviewer to manipulate the contrast and windowing of the image.

13. (Original) The apparatus of claim 11, further comprising:
marker focus system to permit a reviewer to automatically move from marked location to marked location on the medical image, wherein each marked location corresponds to an abnormality detected by an abnormality detection system.

14. (Original) The apparatus of claim 7, further comprising:
a system archive to store the medical images, including historical images of past procedures.

15. (Original) The apparatus of claim 7, wherein the image analysis system further comprises a pre-processing module.

16. (Currently Amended) The apparatus of claim 15, wherein the pre-processing module comprises a pixel size adjustor to adjust a number of pixels per square inch to a standard value.

17. (Original) The apparatus of claim 15, wherein the pre-processing module comprises a segmentation logic to segment the medical image.

18. (Original) The apparatus of claim 7, wherein the image analysis system further comprises a post-processing module.

19. (Original) The apparatus of claim 18, wherein the post-processing module includes a tone scale generator to adjust a tone scale to optimize viewing of dense portions of the medical image.

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20. (Original) A system comprising:
a source of image data, each image in the image data having one of a multiplicity of spatial resolutions and a multiplicity of contrast responses;
a preprocessing module to transform the image data into "canonical" forms with uniform contrast response, overall level and pixel size;
such that the image analyzed by a computer aided diagnosis system has a uniform contrast response regardless of the original source of the image.

21. (Currently Amended) The system of claim 20, further comprising:
a post-processing module to modifying a ~~tone scale~~ contrast response curve of the image to improve visibility of suspicious regions.

22. (Original) The system of claim 20, further comprising:
a CAD module to process said data to detect abnormal anatomical features meeting selected criteria.

23. (Original) The system of claim 22, further comprising:
a display to selectively display annotation maps at positions corresponding to suspicious regions around the abnormal anatomical features detected by the CAD module.

24. (Original) The system of claim 20, further comprising:
a remote display to permit access to the processed image via a network.

25. (Original) The system of claim 20, further comprising:
a network coupled to the system, the network permitting a distribution of processing to multiple computing devices.

26. (Currently Amended) A system comprising:
a source of image data;
a CAD module to process the image data to detect abnormal anatomical features meeting selected criteria and to flag the abnormal anatomical features as suspicious regions;
a post-processing module to modify a ~~tone-scale~~contrast response curve of the image to increase visibility of the suspicious regions.

27. (Currently Amended) The system of claim 26, further comprising:
a window generation logic to open a separate window on a display to display a suspicious region; and
the post-processing module optimizing the ~~tone-scale~~contrast response curve for the separate window.

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28. (Currently Amended) A system comprising:

- a source of medical images, ~~each data said image data having one of~~ a multiplicity of spatial resolutions and one of a multiplicity of contrast responses;
- a preprocessing module transforming the ~~multiplicity of medical image data into a~~ “canonical” forms with a uniform contrast response, ~~and overall level,~~ and pixel size;
- a CAD module to process ~~said data~~ the medical image to detect abnormal anatomical features meeting selected criteria and to generate annotation maps identifying image portions corresponding to said abnormal anatomical features;
- a post-processing module to modify a ~~tone-scale~~ contrast response curve of the image to increase visibility of ~~the~~ suspicious regions associated with the abnormal anatomical features; and
- a display to selectively display annotation maps at positions corresponding to suspicious regions.

29. (Original) The system of claim 28, wherein the CAD module is further to generate a DICOM CAD SR object.

30. (Original) The system of claim 29, wherein the CAD module is further to send the DICOM CAD SR object to the network.

31. (Original) The system of claim 29, wherein the DICOM CAD SR object is used by the display to display the annotation map.
